"GET YOUR COPY OF THE NEW WALL CHART"

The Acquisition Management Framework Chart

A Pictorial Road Map for Use by Integrated Product Teams Throughout the System Life Cycle

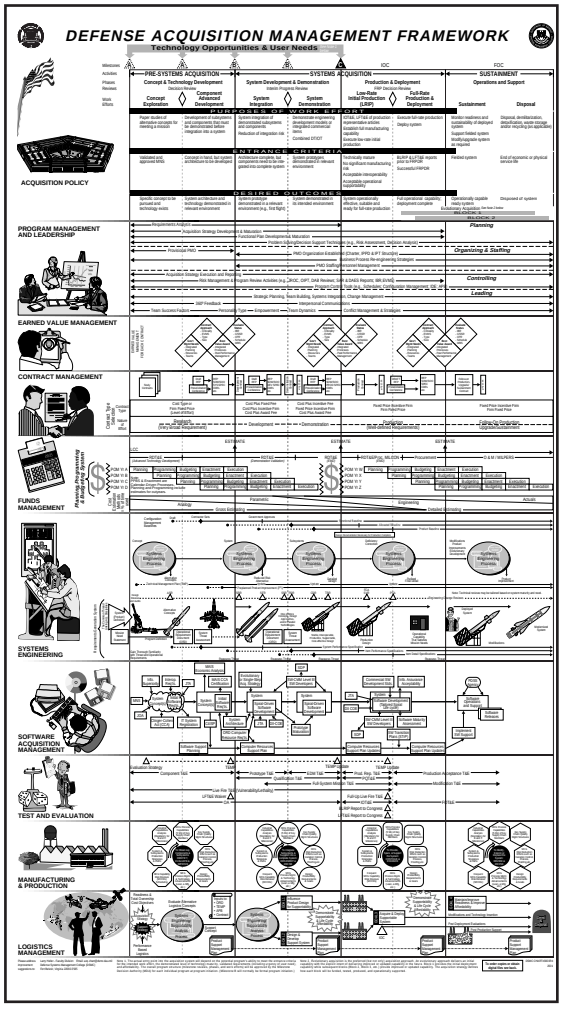
LARRY HELLER

The newly updated Defense Acquisition Management Framework Chart serves as a training aid and is designed to serve as a pictorial road map of functional activities throughout the Defense Systems Acquisition Life Cycle. The chart is based on the policies in the new Department of Defense (DoD) 5000-series documents coupled with "best practices." Providing the basic information needed to help understand the Defense Acquisition Life Cycle Process, the chart is a pictorial representation of the entire life cycle—"cradle to grave"—of a nominal defense acquisition program.

The rows represent the process followed by each functional discipline. The columns represent the total effort underway at each point in a program.

A small black and white image of the "Defense Acquisition Management Framework Chart" appears here, followed by a larger version starting on the next page. A color version of the chart can also be downloaded and printed from the Defense Acquisition University (DAU) Press Web site in a PDF file. To download the file, go to: **http://www.dau.mil/pubs/chart3000/ch_3000.htm**.

Hard copies of the chart will be available in the April 2001 timeframe. Status of availability will be posted on the DAU Web site. Once available, copies can be obtained from the following two sources:



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Military Personnel (MILPERS) funds the costs of salaries and compensation for active military and National Guard personnel as well as personnel-related expenses such as costs associated with permanent change of duty station (PCS), training in conjunction with PCS moves, subsistence, temporary lodging, bonuses, and retired pay accrual.

Operation and Maintenance (O&M) traditionally finances those things that derive benefits for a limited period of time, i.e., expenses, rather than investments. Examples of costs financed are Headquarters operations, civilian salaries and awards, travel, fuel, minor construction projects of $500K or less, expenses of operational military forces, training and education, recruiting, depot maintenance, purchases from Defense Working Capital Funds (e.g., spare parts), base operations support, and assets with a system unit-cost less than the current procurement threshold ($100K).

Cost Estimating is a realistic appraisal of the level of cost most likely to be realized. The main estimation methods are analogy, parametric, engineering, and extrapolation from actual costs.

Life Cycle Cost (LCC) is the total cost to the government of acquisition and ownership of the system over its full life. It includes the cost of development, acquisition, support, and (where applicable) disposal. The USD (AT&L) has defined Defense System Total Ownership Cost (TOC) as Life Cycle Cost.

VII. SYSTEMS ENGINEERING

DSMC POC: Systems Engineering Department; (703) 805-3465

The Systems Engineering (SE) Process controls the total system development effort for the purpose of achieving an optimum balance of all system elements. It is designed to translate operational need and/or requirements into a system solution that includes the design, manufacture, Test and Evaluation (T&E) and support processes and products. SE is used to establish a proper balance among performance, risk, cost, and schedule. It does this by recursively applying the subprocesses of requirements analysis, functional analysis and allocation and design synthesis and verification along with the systems analysis and control tools for balance.

A. Configuration Management (CM) Baselines -

- **Functional Baseline -** The technical portion of the program requirements (system performance specification) that provides the basis for contracting and controlling the system design. It is normally established by the government at System Functional Review (SFR).
- **Allocated Baseline -** Defines the performance requirements for each configuration item of the system (item performance specifications). The contractor normally establishes this early in the process [not later than the Preliminary Design Review (PDR)]. Government control is typically deferred until System Verification Review (SVR).
- **Product Baseline -** Established by the detailed design documentation for each configurations item (item detail specifications). It includes the process and materials baseline (process and materials specifications). Government control depends of program requirements but, if established, is typically done at PCA.

B. Preplanned Product Improvement (P^3I) - A deliberate decision delaying incorporation of a system capability but providing growth allocations for the capability.

C. Technical Management Plan (TMP) - The TMP defines the contractor's plan for the conduct and management of the fully integrated effort necessary to satisfy the general and detailed requirements as implemented by the Request for Proposal (RFP) or contract schedule, statement of work/objectives, and specifications.

D. Design Reviews and Audits

1. **ASR - Alternative Systems Review** - A formal review conducted to demonstrate the preferred system concept(s).
2. **SRR - System Requirements Review** - A formal, system-level review conducted to ensure that system requirements have been completely and properly identified and that there is a mutual understanding between the government and contractor exists.
3. **SFR - System Functional Review** - A formal review of the conceptual design of the system to establish its capability to satisfy requirements. It establishes the functional baseline.
4. **SSR - Software Specification Review** - A formal review of requirements and interface specifications for computer software configuration items.
5. **PDR - Preliminary Design Review** - A formal review which confirms that the preliminary design logically follows the SFR findings and meets the requirements. It normally results in approval to begin detailed design.
6. **CDR - Critical Design Review** - A formal review conducted to evaluate the completeness of the design and its interfaces.
7. **TRR - Test Readiness Review** - A formal review of the contractors' readiness to begin testing computer software configuration items.
8. **FCA - Functional Configuration Audit -** A formal review conducted to verify that all subsystems can perform all of their required design functions in accordance with their functional and allocated configuration baselines.
9. **SVR - System Verification Review** - A formal review conducted to verify that the actual item (which represents the production configuration) complies with the performance specification.
10. **PCA - Physical Configuration Audit** - A formal review that establishes the product baseline as reflected in an early production configuration item.

E. System/Product Definition - This is the natural result of the threat-opportunity-driven Requirements Generation System and the common thread (or area of common interest) among all acquisition disciplines.

1. **Mission Need Statement (MNS)** - A formal document, expressed in broad operational terms and prepared in accordance with Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 13170.01A, that documents deficiencies in current capabilities and opportunities to provide new capabilities.
2. **Program Definition** - The process of translating broadly stated mission needs into a set of operational requirements from which specific performance specifications are derived.
3. **Operational Requirements Document (ORD)** - A formatted statement, which is prepared by the user or user's representative, containing operational performance parameters for the proposed concept/system that defines the system capabilities needed to satisfy the mission need. It is prepared at each milestone, usually beginning with Milestone B.
4. **System Threat Assessment & Projections** - Prepared by a collaboration among the intelligence, requirements generation, and acquisition management communities to support program initiation (usually Milestone B). It is maintained in a current and approved or validated status throughout the acquisition process.

VIII. SOFTWARE ACQUISITION MANAGEMENT

DSMC POC: Software Management Department; (703) 805 3788

Modern DoD systems are almost always *software-intensive*, in which software is the largest segment of: cost; system development risk; system functionality, or development time.

The DoD 5000 Series integrates policy requirements and management guidance for all categories of software-intensive systems, including Automated Information Systems (AISs).

An AIS is an acquisition program that acquires Information Technology (IT), except those IT systems that: (1) involve equipment integral to a weapon or weapons system, or (2) is a tactical communication system. A Major AIS (MAIS) is one which exceeds certain cost thresholds specified by DoD policy or otherwise designated as such by the ASD (C3I)

Evolutionary acquisition and spiral software development models are strongly emphasized by current DoD policies. For many software-intensive systems, outside formal assessments of program fitness by independent expert review teams are also mandated.

Because of the broad scope of DoD software-intensive systems, a wide variety of tailorable approaches to their life cycle management and development is possible following DoD acquisition policies. One such phased approach is:

Concept and Technology Development: Key pertinent capability enablers that can directly impact system software requirements include Clinger-Cohen Act (CCA) compliance, information superiority (DoDD 8000.1 and DoDI 8320.1), interoperability requirements (DoDD 4630.5 and DoDI 4630.8) and use of DoD standard architectures such as the joint Operational Architecture (JOA) and the Joint Technical Architecture (JTA). Exit criteria from this phase typically include system architecture definition and an acceptable level of software product maturity. For C4I systems, a support plan (C4ISP) is required. Additionally, a software developer's level of process maturity is cited for particular emphasis by DoD acquisition policy. Models such as the Software Capability Maturity Model (SW-CMM) or its equivalent are used to assess developer process maturity. For a MAIS, an economic analysis and formal CCA certification are required. Initiation of early planning for Post Deployment Software Support (PDSS) starts.

Systems Development and Demonstration: Depending on the type of software-intensive system, key activities could include:

- Selection of an Evolutionary or Single-Step overall System Acquisition Strategy.
- Spiral-driven software development activities including prototype maturation.
- Selection of competent software developers that have mature development processes, domain experience and relevant tool experience.
- Selection and mutual tailoring of appropriate software development standard(s).
- Risk-driven software metrics selection , based on service policies and the Practical Software Measurement (PSM) methodology.
- Generation of a Software Development Plan (SDP) and other plans by a developer.
- Continuation of planning for Post Deployment Software Support (PDSS) and development of initial computer resources plans by the acquisition office.

Production & Deployment: Key activities include continued refinement of software work products from the previous phase and also could include:

- Continuing assessments of the developer's maturity using techniques such as the Software Capability Evaluation (SCE) based on the SW-CMM or other methods.
- Employment of JTA-compliant software components from DoD repositories such as the Defense Information Infrastructure Common Operating Environment (DII-COE).
- Risk-driven software metrics and refined from previous lifecycle phases, are used to gain visibility into software development activities.
- Determination of an acceptable level of software product maturity prior to deployment.
- Developer generation of key management plans such as a Software Transition Plan (STrP), that document technical requirements and resources needed for PDSS.
- Acquisition office updates of various internal computer resources plans.
- Development of Software Installation Plans (SIPs) if appropriate.
- Control and timing of block releases if required as part of evolutionary acquisition.
- Determination that the system has an acceptable level of information assurance

Operations and Support: Post Deployment Software Support (PDSS) activities, by far the largest cost component of the software lifecycle, are initiated for the Sustainment portion of this phase following the chosen software support concept documented in computer resource plans and developer plans such as the STrP.

IX. TEST AND EVALUATION

DSMC POC: Test and Evaluation Department; (703) 805-2887

Test and Evaluation (T&E) is a process by which a system or components are compared against requirements and specifications through testing. The results are evaluated to assess progress of design, performance, supportability, etc.

Beyond Low Rate Initial Production (BLRIP) Report: Completed by the Director, Operational Test and Evaluation (DOT&E) to assess the Initial Operational Test and Evaluation (IOT&E) for major defense acquisition programs for the FRP Decision Review. A copy is provided to the Congress.

Combined Developmental and Operational Testing (DT/OT): Combining DT and OT is encouraged to achieve time and cost savings. The combined approach shall not compromise either DT or OT objectives. A final independent phase of IOT&E shall still be required for Acquisition Category (ACAT) I and II programs for Beyond Low Rate Initial Production (BLRIP) decisions.

Developmental Test and Evaluation (DT&E): A technical test conducted to provide data on the achievability of critical system performance parameters. This testing is performed on components, subsystems, and system-level configurations of hardware and software.

Evaluation Strategy: a description of how the capabilities in the Mission Need Statement (MNS) will be evaluated once the system is developed. The Evaluation Strategy shall be approved by the DOT&E and the cognizant Overarching Integrated Product Team (OIPT) team leader 180 days after Milestone A approval. The Evaluation Strategy will evolve into the Test and Evaluation Master Plan (TEMP) which is first due at Milestone B.

Follow-On OT&E (FOT&E): OT&E needed during and after the production phase to refine estimates from the IOT&E, to evaluate system changes, and to reevaluate the system as it continues to mature in the field. FOT&E may evaluate system performance against new threats or in new environments.

Full-Up Live Fire T&E (LFT&E): A system-level live fire test of an ACAT I or II covered system, that is required before going BLRIP.

Initial Operational T&E (IOT&E): All OT&E that is conducted on production or production representative articles to support the decision to proceed BLRIP. It is conducted to provide a valid estimate of expected system operational effectiveness and suitability for ACAT I and II systems.

Lethality T&E: Testing the ability of a munitions to cause damage that will cause the loss or a degradation in the ability of a target system to complete its designated missions.

Live Fire Test and Evaluation (LFT&E) Report: Completed by the DOT&E for ACAT I and II systems that have been subjected to a full-up live fire test prior to Full Rate Production (FRP) Decision Review. Usually included in the DOT&E report of the IOT&E (BLRIP report) when sent to the Congress.

Modification T&E: Testing done after FRP Decision Review to evaluate modifications/upgrades/improvements to the system.

Operational Assessment (OA): An evaluation of operational effectiveness and suitability made by an independent operational test agency, with user support as required, on other than production systems. An OA conducted prior to Milestone B is called an Early Operational Assessment (EOA).

Operational T&E (OT&E): The field test, under realistic combat conditions, of any item (or key component of), weapons, equipment, or munitions for the purpose of determining the effectiveness and suitability for use in combat by typical military users, and the evaluation of the results of such test. Required for ACAT I and II programs.

Production Acceptance T&E (PAT&E): T&E of production items to demonstrate that items procured fulfill the requirements and specifications of the procuring contract or agreements.

Production Qualification T&E (PQT&E): A technical test conducted to ensure the effectiveness of the manufacturing process, equipment, and procedures. These tests are conducted on a number of samples taken at random from the first production lot and are repeated if the design or process is changed significantly.

Qualification Testing: Testing that verifies the contractor's design and manufacturing process and provides a performance parameter baseline for subsequent tests. (Best Practice)

Test and Evaluation Master Plan (TEMP): The testing strategy in the TEMP for ACAT I and IA programs shall focus on the overall structure, major elements, and objectives of the test and evaluation program that is consistent with the acquisition strategy.

Vulnerability T&E: Testing a system or component to determine if it suffers definite degradation as a result of having been subjected to a certain level of effects in an unnatural, hostile environment. A subset of survivability.

X. MANUFACTURING AND PRODUCTION

DSMC POC: Manufacturing Management Department; (703) 805-3763

Manufacturing (also referred to as Production) is the conversion of raw materials into products and/or components through a series of manufacturing procedures and processes.

Manufacturing Management is the technique of planning, organizing, directing, controlling, and integrating the use of people, money, materials, equipment, and facilities to accomplish the manufacturing task economically.

An Acquisition Strategy outlines the approach to obtaining a certain amount of a product or system, within a planned timeframe and funding. The desired product or system has to be manufactured/produced, to a quality level that provides confidence the system will perform as advertised. The Production Strategy is the approach to obtaining the total quantity of the system, at some rate, for some cost. The Production Strategy must match up with the Acquisition Strategy.

The role of Manufacturing during the "pre-production" period is to influence the design of the subsystems and system, and to prepare for production. Once production has been authorized, the role of manufacturing is to execute the manufacturing plan. The overall objective of Manufacturing is to provide a uniform, defect-free product with consistent performance, and a lower cost in terms of both time and money.

The focus of manufacturing "pre-production" efforts are to assure the system/subsystem designs are producible, and that the "factory floors" in the Supply Chain that will produce the items are properly characterized. These efforts are to: identify the needed manufacturing resources and capabilities, the "5Ms"; the risks associated with providing them; and insure that those risks are addressed as part of the overall Program Risk Management Plan.

The Manufacturing Plan is a formal description of a method for employing the facilities, tooling, and personnel resources to produce the design. The manufacturing plan must insure that the items produced reflect the design intent, that the processes are repeatable, and that process improvements are constantly pursued.

Industrial Capability Assessment (ICA): A legal requirement (10 USC 2440) at each milestone to analyze the industrial capability to design, develop, produce, support, and (if appropriate) restart the program.).

The "5Ms" are: Manpower, Materials, Machinery, Methods, and Measurement. These are five major elements of all manufacturing and production efforts, and are referred to during resource requirements risk identification & management.

Supply Chain: All organizations directly associated with the flow and transformation of materials and related information, from source to end user.

Variation Control: Identification of key process and product characteristics, and reduction/elimination of significant differences from the nominal values of those characteristics –so that those differences would not cause unacceptable degradation in product cost, quality, delivery schedule, or performance.

Process Proofing: Demonstration of all 5Ms of the required manufacturing capability, in a realistic, production-representative facility.

X. MANUFACTURING AND PRODUCTION *(cont.)*

Design Producibility: A measure of the relative ease of manufacturing a product design. Emphasis is on simplicity of design and reduction in opportunities for variation during fabrication, assembly, integration and testing of components, processes, and procedures.

Lean: *A fundamental way of thinking, intended to enable* flexibility and waste reduction— *in order to* reduce costs, cycle time, and defective products— by focusing on those actions which will provide value to the end-item customer

e-Mfg: The use of the Internet and all other electronic means to manage the entire manufacturing enterprise**.**

XI. LOGISTICS MANAGEMENT

DSMC POC: Logistics Management Department; (703) 805-2497

Logistics Management is the process of "getting the right things, to the right places, at the right time, for the right cost." Department of Defense logistics management encompasses the entire system's life cycle to include acquisition (design, develop, test, produce and deploy), sustainment (operations and support), and disposal.

The principal goals/objectives of logistics management are to:

1. Influence product design for supportability
2. Design and develop the support system
3. Acquire and concurrently deploy the supportable system (including support infrastructure)
4. Maintain/improve readiness and improve affordability

Support Elements, such as the following, have traditionally been considered a framework for supportability analyses:

1. Maintenance Planning
2. Manpower and Personnel
3. Supply Support
4. Support Equipment
5. Technical Data
6. Training and Training Support
7. Computer Resources Support
8. Facilities
9. Packaging, Handling, Storage and Transportation
10. System/Design Interface

Logistics Transformation is fundamental to acquisition reform. DoD decision makers shall integrate acquisition and logistics to ensure a superior product support process by focusing on total ownership cost, supportability as a key design and performance factor, and logistics emphasis in the systems engineering process.

Support Strategy is part of the acquisition strategy and an integral part of the systems engineering process. The support strategy shall address life cycle sustainment and continuous improvement of product affordability, reliability, and supportability, while sustaining readiness.

Supportability Analyses are a set of analytical tools used as an integral part of the systems engineering process. These tools help determine how to most cost effectively support the system throughout the life cycle and form the basis for design requirements stated in the system performance specification and Product Support Management Plan.

Key Acquisition Documents that reflect support inputs include the Operational Requirements Document (ORD), Test and Evaluation Master Plan (TEMP), Acquisition Program Baseline (APB) and the contract.

Product Support Management Plan is a life cycle plan that includes actions to assure sustainment and continually improve product affordability. This plan is used throughout initial procurement, reprocurement, and post production support. The plan documents an integrated acquisition and logistics strategy for the life of the system.

Post Deployment Evaluations of the system, beginning at Initial Operational Capability (IOC), shall be used to verify whether the fielded system meets thresholds and objectives for cost, performance, and support parameters. Demonstration of supportability and life cycle affordability shall be entrance criteria for the Production and Deployment Phase.

Performance Based Logistics consists of: 1) output performance parameters to ensure system ready capability, 2) assignment of responsibilities with incentives for attainment of the goals associated with these performance parameters, and 3) overall life cycle management of system reliability, sustainment and Total Ownership Cost.

DSMC CHART# 3000R4
2001

DEFENSE ACQUISITION MANAGEMENT FRAMEWORK

Technology Opportunities & User Needs *See Note 1 below*

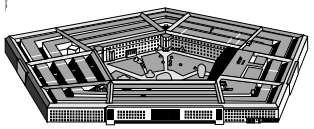
Milestones: A | A | B | B | C | IOC | FOC

Activities: PRE-SYSTEMS ACQUISITION | SYSTEMS ACQUISITION | SUSTAINMENT

Phases: Concept & Technology Development | System Development & Demonstration | Production & Deployment | Operations and Support

Reviews: Decision Review | Interim Progress Review | FRP Decision Review

Work Efforts: Concept Exploration | Component Advanced Development | System Integration | System Demonstration | Low-Rate Initial Production (LRIP) | Full-Rate Production & Deployment | Sustainment | Disposal



ACQUISITION POLICY

PURPOSES OF WORK EFFORT

Concept Exploration	Component Advanced Development	System Integration	System Demonstration	Low-Rate Initial Production (LRIP)	Full-Rate Production & Deployment	Sustainment	Disposal
Paper studies of alternative concepts for meeting a mission	Development of subsystems and components that must be demonstrated before integration into a system	System integration of demonstrated subsystems and components Reduction of integration risk	Demonstrate engineering development models or integrated commercial items Combined DT/OT	IOT&E, LFT&E of production representative articles Establish full manufacturing capability Execute low-rate initial production	Execute full-rate production Deploy system	Monitor readiness and sustainability of deployed system Support fielded system Modify/upgrade system as required	Disposal, demilitarization, detoxification, waste storage and/or recycling (as applicable)

ENTRANCE CRITERIA

Concept Exploration	Component Advanced Development	System Integration	System Demonstration	Low-Rate Initial Production (LRIP)	Full-Rate Production & Deployment	Sustainment	Disposal
Validated and approved MNS	Concept in hand, but system architecture to be developed	Architecture complete, but components need to be integrated into complete system	System prototypes demonstrated in relevant environment	Technically mature No significant manufacturing risk Acceptable interoperability Acceptable operational supportability	BLRIP & LFT&E reports prior to FRPDR Successful FRPDR	Fielded system	End of economic or physical service life

DESIRED OUTCOMES

Concept Exploration	Component Advanced Development	System Integration	System Demonstration	Low-Rate Initial Production (LRIP)	Full-Rate Production & Deployment	Sustainment	Disposal
Specific concept to be pursued and technology exists	System architecture and technology demonstrated in relevant environment	System prototype demonstrated in a relevant environment (e.g., first flight)	System demonstrated in its intended environment	System operationally effective, suitable and ready for full-rate production	Full operational capability; deployment complete	Operationally capable ready system	Disposed of system

Evolutionary Acquisition *See Note 2 below*

BLOCK 1

BLOCK 2

PROGRAM MANAGEMENT AND LEADERSHIP

- Requirements Analysis
- Acquisition Strategy Development & Maturation
- Functional Plan Development & Maturation
- Problem Solving/Decision Support Techniques (e.g., Risk Assessment, Decision Analysis)

Planning

- Provisional PMO
- PMO Organization Established (Charter, IPPD & IPT Structure)
- Business Process Re-engineering Strategies
- PMO Staffing/Personnel Management

Organizing & Staffing

- Acquisition Strategy Execution and Reporting
- Risk Management & Program Review Activities (e.g., JROC, OIPT, DAB Reviews; SAR & DAES Reports; IBR,EVMS)
- Program Control Tools (e.g., Schedules; Configuration Management; IDE; APB)

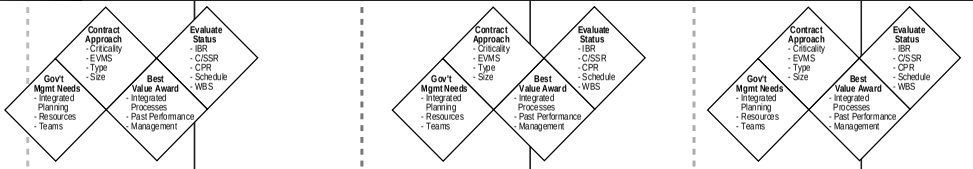
Controlling

- Strategic Planning, Team Building, Systems Integration, Change Management
- 360º Feedback
- Interpersonal Communications
- Team Success Factors
- Personality Type
- Empowerment
- Team Dynamics
- Conflict Management & Strategies

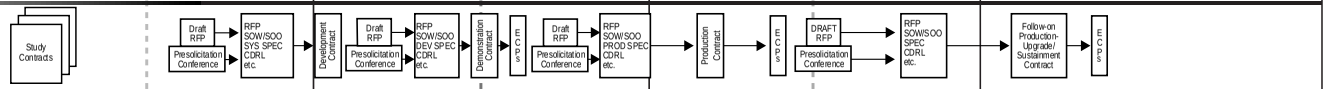
Leading

EARNED VALUE MANAGEMENT

EARNED VALUE MANAGEMENT FOR EACH CONTRACT

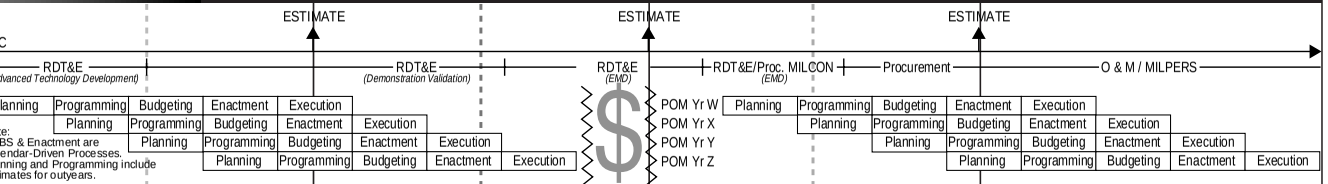


CONTRACT MANAGEMENT



Contract Type Selection

	PRE-SYSTEMS ACQUISITION	SYSTEMS ACQUISITION		SUSTAINMENT
Contract Type	Cost Type or Firm Fixed Price (Level of Effort)	Cost Plus Fixed Fee Cost Plus Incentive Firm Cost Plus Award Fee	Cost Plus Incentive Fee Fixed Price Incentive Firm Cost Plus Award Fee	Fixed Price Incentive Firm Firm Fixed Price	Fixed Price Incentive Firm Firm Fixed Price
Nature of Effort	Research (Very Broad Requirement)	Development	Demonstration	Production (Well-defined Requirements)	Follow-On Production Upgrade/Sustainment



FUNDS

Planning,Programming Budgeting System

Cost Estimation Methods Used Over Time

FUNDS MANAGEMENT

Planning & Budgeting

Cost Estimating Methodology = % of use

Analogy — Parametric — Engineering

Gross Estimating — Detailed Estimating

SYSTEMS ENGINEERING

Requirements Generation System

The Common Thread Linking ALL Disciplines

System (Product) Definition

Mission Need Statement

Configuration Management Baselines

Draft — Contractor Sets — Government Approves

Functional Baseline — Allocated Baseline — Product Baseline

Design Documentation Necessary for Production Complete

Concept — System — Subsystems — Deficiency Correction — Modifications, Product Improvements, Evolutionary Development

Systems Engineering Process

Alternative Concepts — Reduced Risk Alternative — Detailed Design — Refined Final Detail — Product Improvement

Technical Management Plan (TMP) — Update — Update

Preplanned Product Improvement (P³I)

Design Reviews and Audits

ASR — SRR — SFR — SSR — PDR — CDR — TRR — FCA SVR — PCA

Note: Technical reviews may be tailored based on system maturity and need.

Engineering Change Reviews

Program Definition — Alternative Concepts — Operational Requirement Document (ORD) — System Threat Assessment

One or More Concepts, Design Approaches, and/or Parallel Technologies — Stable, Interoperable, Producible, Supportable, Cost-effective Design — Production Design — Operational Capability That Satisfies Mission Needs — Deployed System — Modernized System — Modifications

System Performance Specification — Item Performance Specifications — Item Detail Specifications

Gain Thorough Familiarity with Threat and Operational Requirements

Reassess Threat — Reassess Threat — Reassess Threat — Reassess Threat

SOFTWARE ACQUISITION MANAGEMENT

MAIS Economic Analysis

Info. Superiority — Interop. Req'ts. — JTA — MAIS CCA Certification

MNS — JOA — System Concept(s) — Initial Software Req'ts. — Clinger-Cohen Act (CCA) — IT System Registration

System Concept(s) — Initial Software Req'ts. — C4ISP — System Architecture — ORD Computer Resource Req'ts.

Evolutionary or Single-Step Acq. Strategy — SDP — SW-CMM Level III SW Developers

System — Spiral-Driven Software Development — JTA — DII-COE — Prototype Maturation

System — Spiral-Driven Software Development

Commercial SW Development Stds. — Info. Assurance Acceptability

JTA — DII COE — System — Software Development (Tailored Spiral Life cycle)

SW-CMM Level III SW Developers — Software Maturity Assessment — SDP — SW Transition Plans (STrP)

PDSS Agency — Software Operations and Support — Software Releases — Implement SW Support

Software Support Planning — Computer Resources Support Plan — Computer Resources Support Plan Updates — Computer Resources Support Plan Updates

TEST AND EVALUATION

Evaluation Strategy — TEMP — TEMP Update — TEMP Update

Component T&E — Prototype T&E — EDM T&E — Prod. Rep. T&E — Production Acceptance T&E

Qualification T&E — PQT&E

Full-System Mission T&E — Modification T&E

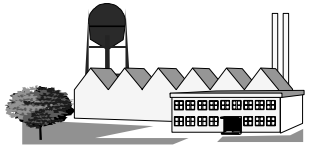
Live Fire T&E (Vulnerability/Lethality)

LFT&E Waiver — Full-Up Live Fire T&E

OA — IOT&E — FOT&E

BLRIP Report to Congress

LFT&E Report to Congress



MANUFACTURING & PRODUCTION

Industrial Capabilities Analysis (Mandatory for B and C Milestones) — MFG Process Capabilities (5 Ms) of Key Supply Chain Members — Key Supply Chain Quality Mgmt Structures

System & Subsystems Production Strategies & Plans — To Obtain key Components & Subsystems: IDENTIFY, EVALUATE & IMPROVE — To Integrate Subsystems & Support into a complete System: IMPLEMENT & REFINE — To Provide, Spare, & Support the System: CONTINUE & ENHANCE — To Modify, Extend, or Replace the System: REVIEW & REVISE — MFG Risk Reduction Efforts such as Variation Control, Process, Proofing,etc.

Frequent MFG Capability Risk Reviews (MCCRs) Scheduling — MFG Process Mgmt. & Technology Advancements (Lean, e-Mfg. etc.) — Design Producibility Requirements & Goals

LOGISTICS MANAGEMENT

Readiness & Total Ownership Cost Objectives

Acquisition Strategy — Support Strategy — Performance Based Logistics

Evaluate Alternative Logistics Concepts

Systems Engineering/ Supportability Analysis Process

Inputs to:
- ORD
- TEMP
- APB
- Contract

Support Concept

Product Support Management Plan

GOAL 1 Influence Product Design for Supportability

GOAL 2 Design & Develop Support System

Demonstrate Supportability & Life Cycle Affordability

GOAL 3 Acquire & Deploy Supportable System

IOC

Demonstrate Supportability & Life Cycle Affordability

GOAL 4 Maintain/Improve Readiness & Improve Affordability

Modifications and Technology Insertion

Post Deployment Evaluations

Post Production Support

FACTORY CLOSED

Demil & Disposal

Product Support Management Plan

Please address improvement suggestions to: Larry Heller - Faculty Division Email: acq.chart@dsmc.dau.mil
Defense Systems Management College (DSMC)
Fort Belvoir, Virginia 22060-5565

Note 1. The actual entry point into the acquisition system will depend on the potential program's ability to meet the entrance criteria for the intended work effort, the demonstrated level of technology maturity, validated requirements (including urgency of user need), and affordability. The overall program structure (milestone reviews, phases, and work efforts) will be approved by the Milestone Decision Authority (MDA) for each individual program at program initiation. (Milestone B will normally be formal program initiation.)

Note 2. Evolutionary acquisition is the preferred (but not only) acquisition approach. An evolutionary approach delivers an initial capability with the explicit intent of delivering improved or updated capability in the future. Block 1 provides the initial deployment capability while subsequent blocks (Block 2, Block 3, etc.) provide improved or updated capability. The acquisition strategy defines how each block will be funded, tested, produced, and operationally supported.

To order copies or obtain digital files see back.

DSMC CHART#3000R4
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Defense Acquisition Management Framework

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I. INTRODUCTION

DSMC POC: Larry Heller; (703) 805-4657

The Defense Acquisition Management Framework Chart is a training aid for Defense Systems Management College (DSMC) courses and is designed to serve as a pictorial roadmap of functional activities throughout the Defense Systems Acquisition Life Cycle. This chart is based on the policies in Department of Defense (DoD) 5000 Series documents. These consist of:

- DoD Directive (DoDD) 5000.1, *The Defense Acquisition System*;
- DoD Instruction (DoDI) 5000.2, *Operation of the Defense Acquisition System*; and
- Interim Regulation DoD 5000.2-R, *Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs.*

The final DoD 5000.2-R is expected to be released in the Spring of 2001. The *Defense Acquisition Deskbook* describes discretionary information and best practices for implementing defense acquisition. This chart is ***not*** a substitute for these references.

This chart provides the basic information needed to help understand the Defense Acquisition Life Cycle Process. For additional information, please use the reference materials indicated above or contact the department point of contact (POC) associated with each section of the chart. Department POCs can further explain their respective sections on the chart.

There is no single, approved taxonomy of the functional disciplines and subdisciplines that, taken together, constitute defense systems acquisition. Acquisition career fields have been established under the auspices of DoD 5000.52-M; *Career Development Program for Acquisition Personnel*, for both military and civilian members of the Defense Acquisition Workforce.

II. ACQUISITION POLICY

DSMC POC: Acquisition Policy Department; (703) 805-5144

The Defense Acquisition Management Framework is structured by DoDI 5000.2 into discrete, logical phases separated by major decision points (called milestones) to provide the basis for comprehensive management and progressive decision making. The number of phases and decision points are tailored to meet the specific needs of individual programs.

The systems acquisition process begins with the identification of a need. It encompasses the activities of design, test, manufacture, operations and support. It may involve modifications and it ends with the disposal/recycling/demilitarization of that system. Upgrade (or modification) programs also follow the acquisition life cycle that includes the activities of design, test, manufacture, installation and checkout, plus operations and support.

The following policies and principles govern the operation of the defense acquisition system and are divided into five major categories as stated in DoDD 5000.1. These categories are: 1) Achieving Interoperability, 2) Rapid and Effective Transition from Science and Technology to Products, 3) Rapid and Effective Transition from Acquisition to Deployment and Fielding, 4) Integrated and Effective Operational Support, and 5) Effective Management.

To implement these varied policies and principles, many unique requirements, laws, and regulations are imposed on defense acquisition that still burden program managers in pursuing the efficiencies inherent in pure commercial acquisition practice.

DoD components first try to satisfy mission needs through nonmateriel solutions, such as changes in doctrine or tactics. If existing U.S. military systems or other on-hand materiel cannot be economically used or modified to meet the operational requirement, a materiel solution may be pursued according to the following hierarchy of alternatives:

- Procurement (including modification) of commercially available domestic or international technologies, systems or equipment, or Allied systems or equipment
- Cooperative development program with one or more Allied nations
- New joint Component or Government Agency development program
- New Component-unique development program

A complete listing of statutory and regulatory program information requirements (documentation) applicable to all programs can be found in Enclosure 3, DoDI 5000.2. The Milestone Decision Authority (MDA) may tailor document content based on program needs, but it may not omit documents required by statute or mandatory policy (e.g., Acquisition Program Baseline or Operational Requirements Document). (Figure 1)

Acquisition Strategy. A plan that serves as a roadmap for program execution from program initiation through post-production support. Acquisition Category (ACAT) I and IA Programs must contain information as noted in Figure 2.

FIGURE 1. INFORMATION FOR MILESTONE REVIEWS *(DODI 5000.2)*

	Milestone/Review					
	A	DR	B	IPR	C	FRPDR
Acquisition Decision Memorandum	X	X	X	X	X	X
Acquisition Program Baseline		Note 1	X		X	X
Acquisition Strategy		Note 1	X		X	X
Affordability Assessment			X		X	
Analysis of Multiple Concepts	X					
Analysis of Alternatives			X		Note 3	
Application for Frequency Allocation			X		X	
Beyond Low Rate Initial Production (LRIP) Report (Note 2)						X
Command, Control, Communications, and Computers (C4) Integrated Support Plan		Note 1	X		X	
Clinger-Cohen Act Compliance [all Information Technology (IT)]		Note 1	X		X	X
Compliance with Strategic Plan			X		X	
Component Cost Analysis [Major Automated Information System (MAIS); optional MDAP]			X			X
Consideration of Technology Issues	X		X		X	
Cooperative Opportunities			X		X	X
Cost Analysis Requirements Description [Major Defense Acquisition Programs (MDAPs)]			X		X	X
Economic Analysis (MAIS)			X			
Exit Criteria	X	X	X	X	X	X
Independent Cost Estimate (MDAPs; n/a AIS)			X		X	X
Independent Technology Assessment			X		X	
Interoperability Certification						X
IT Certification (MAIS)		X	X		X	X
Live Fire Testing & Evaluation (T&E) Waiver (covered systems) (Note 2)			X			
Live Fire T&E Report (covered systems) (Note 2)						X
LRIP Quantities			X			
Manpower Estimate			X			X
Market Research	X		X			
Mission Need Statement	X					
National Environmental Policy Act Schedule		Note 5	X		X	X
Operational Requirements Document			X		X	
Operational Test & Evaluation (OT&E) Results			X		X	X
Postdeployment Performance Review						X
Program Protection Plan			X		X	
Registration of Mission Critical & Mission Essential Information System		Note 5	Note 5		Note 5	
System Threat Assessment (n/a AIS)			X		X	
Selected Acquisition Report (MDAPs)		Note 5	X		X	X
Test & Evaluation Master Plan	Note 4		X		X	X

Notes: 1. At entry to Component Advanced Development (CAD) if CAD is program initiation. 2. OSD T&E oversight programs. 3. If no Milestone B.
4. Evaluation strategy for Mission Need Statement (MNS) due 180 days after Milestone A. 5. If program initiation.

FIGURE 2. ACQUISITION STRATEGY ELEMENTS *(INTERIM DOD 5000.2-R)*

- Requirements
  - Approved Source Docs
  - Status of In-process Source Docs
- Program Structure
- Acquisition Approach
- Risk
- Program Management
  - Resources
    - Advance Procurement
    - PMO Staffing & Support
  - Info Sharing & DoD Oversight
  - IDE
  - Tech Reps at Contractor Facilities
  - Government Property In Possession of Contractors
  - Tailoring & Streamlining
    - Requests for Relief or Exemption
    - Applying Best Practices
  - Planning for Modeling & Simulation
  - Independent Expert Review of Software Intensive Programs
- Design Considerations
  - Open Systems
  - Interoperability
    - IT Interoperability
    - Other than IT Integration
  - IT Supportability
  - Protection of Critical Program Info & Anti-Tamper Provisions
- Support Strategy
  - Product Support
    - Management Plan
    - Integration
  - Source of Support
    - Depot Maintenance
    - Supply
    - Contractor Log Support
  - Human Sys Integration
  - Environmental Safety & Occupational Health
  - Demilitarization & Disposal
  - Life Cycle Support Oversight
  - Post Deployment Evaluation
- Business Strategy
  - Competition
    - Fostering a Competitive Environment
    - Competition Advocates
    - Ensuring Future Competition
  - Building Competition Into Strategies
    - Acquisition Phases
    - Evolutionary Acquisition
    - Industry Involvement
  - Potential Obstacles
    - Exclusive Teaming
    - Sub-Tier Competition
  - Potential Sources
    - Market Research
    - Commercial & NDI
    - Dual-Use Tech & Comm Plants
    - Industrial Capability
  - SBIR Technologies
  - International Cooperation
    - Cooperative Strategy
    - Interoperability
    - Compliance
    - Testing Required for Foreign Military Sales
  - Contract Approach
    - Major Contracts Planned
    - Contract Type
    - Contract Incentives
    - Performance Mgmt
    - Integrated Baseline Reviews
    - Special Terms & Conditions
    - Warranties
    - Component Breakout
  - Leasing

From DoDI 5000.2, Encl 3, Table 1
- Partnering Analysis
- Make or Buy Analysis
- Core Logistics Analysis/ Source of Supply Analysis

III. PROGRAM MANAGEMENT AND LEADERSHIP

DSMC POC: Program Management and Leadership Department; (703) 805-4985

Fundamental change in the DoD acquisition culture is underway and requires individuals and organizations to change from a hierarchical decision-making process to one where decisions are made across organizational structures by multidisciplinary teams known as Integrated Product Teams (IPTs). Successful Program Managers (PMs) must be leaders who can create a vision for their program, translate this into a concrete mission, break the mission down into critical success factors (goals), and nurture and develop the IPTs (via empowerment and teamwork) to successfully execute acquisition programs. Under DoDD 5000.1, DoDI 5000.2, and DoD 5000.2-R, the preferred program management technique for use by a PM is known as Integrated Product and Process Development (IPPD). The goal of IPPD is to optimize the technology, design, manufacturing, plus business and supportability processes by integrating all acquisition activities from requirements definition through development, production, deployment and operations support. IPPD is an expansion of concurrent engineering where design, manufacturing and support of a system are integrated through the use of IPTs.

The primary program management activities are as follows:

Planning: One of the first program management planning activities is the development of the acquisition strategy, which lays out how the program will accomplish its objectives in terms of (among others) cost, schedule, performance, risk, and contracting activities. For decision, interim progress, and milestone reviews, it is included as part of a single document (to the maximum extent practicable). The PM may choose to develop the acquisition strategy as a stand-alone document or as part of a multipurpose document (e.g., an Army Modified Integrated Program Summary (MIPS), a Navy Master Acquisition Program Plan (MAPP), or an Air Force Single Acquisition Management Plan (SAMP)). Each program's acquisition strategy is tailored to meet the specific requirements and circumstances of the program. There are two basic strategy approaches — Evolutionary and Single Step to Full Capability. Evolutionary is the preferred approach and delivers an initial capability with the explicit intent of delivering improved or updated capability in the future. See Part II of this chart for acquisition strategy elements.

Organizing and Staffing: The establishment, organization, and staffing of the program office should be a direct outgrowth of a task analysis that supports the program's acquisition strategy. As the program evolves, the program office organization and staffing should also evolve to support the changing task requirements and acquisition environment.

Controlling: The control system consists of standards against which progress can be measured, a feedback mechanism that provides information to a decision maker, and a means to make corrections either to the actions underway or to the standards. Examples of standards used in the systems acquisition process includes the Acquisition Program Baseline (APB), exit criteria, program schedules, program budgets, specifications, plans, and test criteria. Examples of feedback mechanisms for program control, oversight, and risk management include the Joint Requirements Oversight Council (JROC), Overarching Integrated Product Team (OIPT), Defense Acquisition Board (DAB), Integrated Baseline Review (IBR), technical reviews, and Developmental and Operational Test and Evaluation (D/OT&E). Other reports available through a Program's Integrated Digital Environment (IDE) include the Selected Acquisition Report (SAR), Defense Acquisition Executive Summary (DAES), Earned Value Management (EVM) Report, and Contract Funds Status Report (CFSR).

Leading: Effective leadership is the key to program success. It involves developing an organization's mission, vision, and goals, and clearly articulating a set of core values. Dominant leadership roles in program management include strategy setting, consensus/team building, systems integration, and change management. For successful teams, factors such as empowerment, clear purpose, open communication, adequate resources, and a team-behavioral environment are critical.

IV. EARNED VALUE MANAGEMENT

DSMC POC: Earned Value Management Department; (703) 805-3769

Earned Value Management: The use of an integrated management system to coordinate work scope, schedule, and cost goals and objectively measure progress toward those goals.

Earned Value Management Systems (EVMS): Management standards (for significant dollar threshold contracts) used to evaluate an organization's integrated management systems.

Cost Performance Report (CPR): An objective summary of contract status that includes the following:

Budgeted Cost of Work Scheduled (BCWS) - Value of work scheduled in budget terms.
Budgeted Cost of Work Performed (BCWP) - Value of work completed in budget terms.
Actual Cost of Work Performed (ACWP) - Cost of work completed.

Cost/Schedule Status Report (C/SSR): A reasonably objective summary of contract status in terms of BCWS, BCWP, and ACWP.

Work Breakdown Structure (WBS): A product-oriented family tree composed of hardware, software, services, and data, which comprise the entire work effort under a program.

Integrated Baseline Review (IBR): A joint Government/Contractor assessment of the performance measurement baseline (PMB).

V. CONTRACT MANAGEMENT

DSMC POC: Contract Management Department; (703) 805-3442

Contract Management is the process of systematically planning, organizing, executing, and controlling the mutually binding legal relationship obligating the seller to furnish supplies and/or services and the buyer to pay for them.

Contract: The document that definitizes the government/industry agreement.

A Draft Request for Proposal (RFP) and Presolicitation Conference: are used to ensure that the requirements are understood by industry and that feedback is provided to the government.

Cost Type Contract: A family of cost-reimbursement type contracts, where the government pays the cost (subject to specified limitations) and the contractor provides "best efforts." This type may provide for payment of a fee that may consist of an award fee, incentive fee, or fixed fee.

Engineering Change Proposal (ECP): A formal document used to make engineering changes to configuration management baselines in an existing contract.

Fixed Price Type Contract :Firm Fixed Price(FFP) or Fixed Price Incentive(FPI): A family of fixed-price type contracts where the government pays a price that is subject to specified provisions, and the contractor delivers a product or service. This type may provide for payment of incentives or other sharing arrangements.

Statement of Work(SOW); Statement of Objective(SOO) Specification, Contract Data Requirement List(CDRL): The documents used in soliciting contracts for each phase of work the RFP sets forth the needs; the SOW/SOO is the formal statement of these needs as requirements for contractual effort (what the contractor will do); The specification sets forth the technical requirements (what the system will do), and the CDRL definitizes the data deliverables.

VI. FUNDS MANAGEMENT

DSMC POC: Funds Management Department; (703) 805-2451

Government Budget Plan: The generic title for an internal government document that plans the long-range budgeting strategy for the life of a given program.

Planning, Programming and Budgeting System (PPBS): The PPBS is a time-driven resource allocation process within DoD to request funding for all operations, including weapon system development and acquisition. It is essential to convert each program's event-driven acquisition strategy and phasing into the PPBS's calendar-driven funding profiles to assure the appropriate amount and type of funds are available to execute the desired program.

Planning Phase – The Defense Planning Guidance (DPG) is a document which sets forth broad policy objectives and military strategy. The DPG guides the development of the Program Objectives Memorandum (POM).
Programming Phase – The POM and the Program Decision Memorandum (PDM) are the keystone documents completed in this phase. The POM provides strategies for the Services to meet DoD objectives outlined in the DPG. The POM is reviewed by staff officers of the Secretary of Defense, the Commanders in Chief of unified and specified commands, and the Joint Chiefs of Staff. The reviews highlight major program issues and alternatives. The Deputy Secretary of Defense reviews the POM and the issues and decides on the appropriate course of action. The decisions are documented in the PDM.
Budgeting Phase – The completion of the Budget Estimate Submission (BES). The BES is the POM documentation updated for the decisions outlined in the PDM. The BES is reviewed by the Under Secretary of Defense Comptroller, and the Office of Management and Budget (OMB) for execution feasibility. Funding changes that are due to execution issues are identified in Program Budget Decisions (PBDs). The updated BES is forwarded to OMB and incorporated into the President's Budget. The President's Budget is due to the Congress no later than the first Monday in February.

Enactment – The process that the Congress uses to develop and pass the Authorization and Appropriations Bills. In the enactment process, the DoD has an opportunity to work with the Congress and defend the President's Budget.

Funding Appropriation Types:

RDT&E:
Budget Activity 1, Basic Research, includes all efforts and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs.
Budget Activity 2, Applied Research, translates promising basic research into solutions for broadly defined military needs, short of development projects. This type of effort may vary from systematic mission-directed research, which is beyond that in Budget Activity 1, to sophisticated breadboard hardware, study, programming, and planning efforts that establish the initial feasibility and practicality of proposed solutions to technological challenges.
Budget Activity 3, Advanced Technology Development, includes all efforts that have moved into the development and integration of hardware for field experiments and tests. The results of this type of effort are proof of technological feasibility and assessment of operability and producibility rather than the development of hardware for service use.
Budget Activity 4, Demonstration and Validation, includes all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.
Budget Activity 5, Engineering and Manufacturing Development, includes those projects in engineering and manufacturing development that are for Service use but have not received approval for full-rate production.

Procurement is used to finance investment items, and it should cover all costs integral and necessary to deliver a useful end item intended for operational use or inventory.

Military Construction (MILCON) funds the cost of major construction projects such as bases, facilities, military schools, etc. Project costs include architecture and engineering services, construction design, real property acquisition costs, and land acquisition costs necessary to complete the construction project.